

AMENDMENTS

This listing of claims will replace all prior versions and listings of claims in the prior application:

Claims 1-45 (Canceled)

Claim <sup>1</sup>~~46~~ (new) A method for individually labeling a cell within a population of cells whereby the cell is differentially labeled relative to neighboring cells within the population, the method comprising propelling a particle coated with a lipophilic hydrophobic dye at the population of cells to cause the particle to contact the membrane of the cell, and allowing the dye to diffuse into the cell membrane and thereby differentially label the cell relative to neighboring cells within the population.

Claim <sup>2</sup>~~47~~ (new) The method of claim <sup>1</sup>~~46~~, wherein the lipophilic hydrophobic dye is a fluorescent dye.

Claim <sup>3</sup>~~48~~ (new) The method of claim <sup>1</sup>~~46~~, wherein the fluorescent dye is a carbocyanine dye.

Claim <sup>4</sup>~~49~~ (new) The method of claim <sup>3</sup>~~48~~, wherein the dye is selected from the group consisting of DiO, DiI, DiD, and any combination thereof.

Claim <sup>5</sup>~~50~~ (new) The method of claim <sup>1</sup>~~46~~, wherein the propelling is by a gas means.

Claim <sup>6</sup>~~51~~ (new)      The method of claim <sup>5</sup>~~50~~, wherein the gas means is a particle gun.

Claim <sup>7</sup>~~52~~ (new)      The method of claim <sup>1</sup>~~46~~, wherein the particle is a metal particle.

Claim <sup>8</sup>~~53~~ (new)      The method of claim <sup>7</sup>~~52~~, wherein the metal particle is selected from the group consisting of ferrite crystals, gold and tungsten.

Claim <sup>9</sup>~~54~~ (new)      The method of claim <sup>1</sup>~~46~~, wherein the population of cells is part of a tissue.

Claim <sup>10</sup>~~55~~ (new)      The method of claim <sup>9</sup>~~54~~, wherein the tissue is selected from the group consisting of tumor tissue, epidermal tissue, muscle tissue, bone marrow tissue, neural tissue, brain tissue, organ tissue, and human biopsy tissue.

Claim <sup>13</sup>~~56~~ (new)      The method of claim <sup>1</sup>~~46~~ wherein the stained cell is a living or a fixed cell.

Claim <sup>14</sup>~~57~~ (new)      The method of claim <sup>13</sup>~~56~~, wherein the stained cell is a living cell and said cell is imaged within about one minute of the coated particle being propelled at the cell.

Claim <sup>15</sup>~~58~~ (new)      The method of claim <sup>13</sup>~~56~~, wherein the stained cell is a fixed cell and said cell is imaged within less than about five minutes to about thirty minutes of the coated particle being propelled at the cell.

Claim <sup>11</sup>~~59~~ (new) The method of claim <sup>9</sup>~~54~~, wherein the coated particle is propelled 50-100  $\mu$ m into the tissue to contact the membrane of the cell.

Claim <sup>12</sup>~~60~~ (new) The method of claim <sup>11</sup>~~59~~, wherein the coated particle is propelled about 50-70  $\mu$ m into the tissue.

Claim <sup>17</sup>~~61~~ (new) The method of claim <sup>1</sup>~~46~~, wherein the cell is a neuron.

Claim <sup>18</sup>~~62~~ (new) The method of claim <sup>17</sup>~~61~~, wherein the particle contacts an axon.

Claim <sup>19</sup>~~63~~ (new) The method of claim <sup>17</sup>~~61~~, wherein the particle does not contact the cell body.

Claim <sup>20</sup>~~64~~ (new) A method for individually labeling cells within a population of cells whereby the cells are differentially labeled relative to neighboring cells within the population, the method comprising propelling a plurality of particles coated with a lipophilic hydrophobic dye at the population of cells to cause the particles to contact the membranes of the cells, and allowing the dye to diffuse into the cell membranes and thereby differentially label the cells relative to neighboring cells within the population.

Claim <sup>21</sup>~~65~~ (new) The method of claim <sup>20</sup>~~64~~, wherein the particles are coated with more than one lipophilic hydrophobic dye.

Claim <sup>23</sup>~~66~~ (new) The method of claim <sup>21</sup>~~65~~, wherein each lipophilic hydrophobic dye has an emission profile that is distinct from each of the other lipophilic hydrophobic dyes.

Claim <sup>22</sup>~~67~~ (new) The method of claim <sup>20</sup>~~64~~, wherein the dye is a fluorescent dye.

Claim <sup>24</sup>~~68~~ (new) The method of claim <sup>20</sup>~~64~~, wherein the fluorescent dye is a carbocyanine dye.

Claim <sup>25</sup>~~69~~ (new) The method of claim <sup>24</sup>~~68~~, wherein the carbocyanine dye is selected from the group consisting of DiO, DiI, DiD, and any combination thereof.

Claim <sup>26</sup>~~70~~ (new) The method of claim <sup>20</sup>~~64~~, wherein the plurality of particles is contained in at least one macroprojectile.

Claim <sup>27</sup>~~71~~ (new) The method of claim <sup>20</sup>~~64~~, further comprising causing the macroprojectile to contact a macroprojectile stopping means before contacting the cells, the macroprojectile stopping means being capable of stopping the macroprojectile while allowing at least one particle to continue toward the target cell.

Claim <sup>28</sup>~~72~~ (new) The method of claim <sup>27</sup>~~71~~, wherein the macroprojectile stopping means is a filter.

Claim <sup>29</sup>~~73~~ (new) The method of claim <sup>28</sup>~~72~~, wherein the filter has a pore size of between about 1 and about 8  $\mu\text{m}$ .

Claim <sup>30</sup>~~74~~ (new) The method of claim <sup>20</sup>~~64~~, wherein the propelling is by a gas means.

Claim <sup>31</sup>~~75~~ (new) The method of claim <sup>30</sup>~~74~~, wherein the gas means is a particle gun.

Claim <sup>32</sup>~~76~~ (new) The method of claim <sup>20</sup>~~64~~, wherein the particles are metal particles.

Claim <sup>33</sup>~~77~~ (new) The method of claim <sup>32</sup>~~76~~, wherein the metal particles are selected from the group consisting of ferrite crystals, gold and tungsten.

Claim <sup>34</sup>~~78~~ (new) The method of claim <sup>20</sup>~~64~~, wherein the population of cells is part of a tissue.

Claim <sup>35</sup>~~79~~ (new) The method of claim <sup>34</sup>~~78~~, wherein the tissue is selected from the group consisting of tumor tissue, epidermal tissue, muscle tissue, bone marrow tissue, neural tissue, brain tissue, organ tissue, and human biopsy tissue.

Claim <sup>38</sup>~~80~~ (new) The method of claim <sup>20</sup>~~64~~ wherein the stained cells are living or fixed cells.

Claim <sup>39</sup>~~81~~ (new) The method of claim <sup>38</sup>~~80~~, wherein the stained cells are living cells and said cells are imaged within about one minute of the coated particles being propelled at the cells.

Claim <sup>40</sup>~~82~~ (new) The method of claim <sup>38</sup>~~80~~, wherein the stained cells are fixed cells and said cells are imaged within less than

about five minutes to about thirty minutes of the coated particles being propelled at the cells.

Claim <sup>36</sup>~~83~~ (new)      The method of claim <sup>34</sup>~~78~~, wherein the coated particles are propelled 50-100  $\mu$ m into the tissue to contact the membranes of the cells.

Claim <sup>37</sup>~~84~~ (new)      The method of claim <sup>36</sup>~~83~~, wherein the coated particles are propelled about 50-70  $\mu$ m into the tissue.

Claim <sup>42</sup>~~85~~ (new)      The method of claim <sup>20</sup>~~64~~, wherein the cell is a neuron.

Claim <sup>43</sup>~~86~~ (new)      The method of claim <sup>42</sup>~~85~~, wherein the particle contacts an axon.

Claim <sup>44</sup>~~87~~ (new)      The method of claim <sup>42</sup>~~85~~, wherein the particle does not contact the cell body.

Claim <sup>45</sup>~~88~~ (new)      A method for individually labeling cells within a population of cells whereby the cells are differentially labeled relative to neighboring cells within the population, the method comprising propelling a plurality of particles containing a plurality of nucleotide sequences encoding fluorescent proteins having different emission spectra at the population of cells to cause the particles to enter the cells, and allowing expression of the proteins encoded by the nucleotide sequences to occur and thereby differentially label the cells relative to neighboring cells within the population.

Claim <sup>46</sup>~~88~~ (new) The method of claim <sup>45</sup>~~88~~, wherein the fluorescent proteins with different emission spectra are red fluorescent protein, green fluorescent protein or variants of green fluorescent protein.

Claim <sup>47</sup>~~90~~ (new) The method of claim <sup>45</sup>~~88~~, wherein the propelling is by a gas means.

Claim <sup>48</sup>~~91~~ (new) The method of claim <sup>47</sup>~~90~~, wherein the gas means is a particle gun.

Claim <sup>49</sup>~~92~~ (new) The method of claim <sup>45</sup>~~88~~, wherein the particles are metal particle.

Claim <sup>50</sup>~~93~~ (new) The method of claim <sup>49</sup>~~92~~, wherein the metal particles are selected from the group consisting of ferrite crystals, gold and tungsten.

Claim <sup>51</sup>~~94~~ (new) The method of claim <sup>45</sup>~~88~~, wherein the population of cells is part of a tissue.

Claim <sup>52</sup>~~95~~ (new) The method of claim <sup>51</sup>~~94~~, wherein the tissue is selected from the group consisting of tumor tissue, epidermal tissue, muscle tissue, bone marrow tissue, neural tissue, brain tissue, organ tissue, and human biopsy tissue.

Claim <sup>53</sup>~~96~~ (new) The method of claim <sup>51</sup>~~94~~, wherein the coated particles are propelled 50-100  $\mu\text{m}$  into the tissue to enter the cells.

Claim <sup>54</sup>~~97~~ (new)      The method of claim <sup>53</sup>~~96~~, wherein the coated particles are propelled about 50-70  $\mu\text{m}$  into the tissue.